

WHAT IS CLAIMED IS:

1. A system for integrating broadcast and communication technologies, comprising:
an optical-line terminal (OLT) for receiving at least one digital-broadcast signal
and at least one external data-communication signal, for converting the received signals for
5 combining the converted signals in the form of an optical signal, and transmitting the
optical signal according to an optical wavelength-division multiplexing (WDM);
an optical-network unit (ONU) for separating the optical signal transmitted from the
OLT into the broadcast signal and the communication signal and transmitting the broadcast
signal selected by a user and the communication signal in a predetermined time slot; and,
10 a user gateway for distributing the optical-signal output from the ONU to the user.

2. The system as set forth in claim 1, wherein the OLT optically multiplexes
broadcast signals into a synchronous-digital-hierarchy (SDH)/synchronous-optical-network
(SONET) signal based on time-division multiplexing (TDM) and optically multiplexes
communication signals into a Gigabit-Ethernet signal.

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3. The system as set forth in claim 1, wherein the user gateway is further operative
to transmit upstream data sent by the user to the ONU.

4. The system as set forth in claim 1, wherein the ONU is further operative to
20 process upstream data sent by the user.

5. The system as set forth in claim 1, wherein the ONU comprises:

a WDM optical demultiplexer for demultiplexing the signal output from the OLT;

a broadcast-signal processor for converting the digital-broadcast signal demultiplexed by the WDM optical demultiplexer opto-electrically;

5 a zapping-protocol processor for outputting information of at least one channel selected by the user from the signal output from the broadcast-signal processor;

a switch for opto-electrically converting the communication signal demultiplexed by the WDM optical demultiplexer, for electro-optically converting upstream information from the user to transfer the converted upstream information to the OLT, and for
10 transferring the at least one channel selected by the user to the zapping-protocol processor;
and,

a convergence unit for outputting, in the form of the time slot-based optical signal, the signal selected by the user and outputted from the zapping-protocol processor and the communication-signal output from the switch.

15 6. The system as set forth in claim 5, wherein the broadcast-signal processor receives and opto-electrically converts an SDH/SONET optical signal from the WDM optical demultiplexer, then processes the opto-electrically converted signal on the basis of an MPEG2 multi-program transport stream (MPTS), and finally transfers the processed signal to the zapping-protocol processor.

20 7. The system as set forth in claim 6, wherein the SDH/SONET optical signal is a

synchronous-transfer mode (STM)-n or synchronous-transfer-signal level (STS)-n signal.

8. The system as set forth in claim 1, wherein the user gateway comprises:

an input/output unit for opto-electrically converting the optical signal from the ONU
and electro-optically converting upstream information from the user and transmitting the
5 converted upstream information to the ONU;

a time-slot separator for separating the signal output from the input/output unit into
the broadcast signal and the communication signal;

a distributor for distributing the broadcast signal from the time-slot separator to an
external broadcast receiver and outputting the communication signal separated by the
10 time-slot separator to a communication processor;

the communication processor for transferring the communication signal from the
time slot separator to the user and transferring the upstream information from the user to
the input/output unit; and,

a user -input unit for transferring information indicative of at least one broadcast
15 channel selected by the user to the input/output unit.